DOCUMENT RESUME

ED 325 663 CE 056 237

AUTHOR Campbell, Paul B.; Panzano, Phyllis
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE 85
CONTRACT 300-83-0016
NOTE 47p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Educational Assessment; Educational Objectives; *Educational Quality; Evaluation Criteria; Models; *Outcomes of Education; *Program Effectiveness; *Program Evaluation; *Vocational Education
IDENTIFIERS *Quality Indicators

ABSTRACT

This report is an attempt to conceptualize a comprehensive framework for evaluating vocational education quality. It is intended to inform policymakers of the breadth of the elements of quality and to suggest an integrated framework for assessing quality to vocational education evaluation theoreticians. Chapter 1 offers preliminary considerations. Chapter 2 introduces and defines the elements of quality related to educational outcomes that were identified through the model-building process described in Chapter 1. Two general types of outcomes are included: individual and societal, with a subset of societal outcomes specific to employers. Chapter 3 parallels chapter 2 in structure, but focuses on the elements of quality related to the educational experience. The educational experience is divided into two domains: school context and school process. Chapter 4 presents some issues and guidelines regarding the development of quality indicators for the elements within the proposed model. General evaluation approaches and specific models are discussed as they relate to developing indicators for the elements of quality in vocational education. Thirty-two references are appended. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SUPPORTED BY THE OFFICE OF VOCATIONAL AND ADULT EDUCATION,
U.S. DEPARTMENT OF EDUCATION

THE NATIONAL CENTER MISSION STATEMENT

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

For further information contact:

Program Information Office
National Center for Research
in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

Telephone: (614) 486-3655 or (800) 848-4815
Cable: CTVOCEDOSU/Columbus, Ohio
Telex: 8104821894

ELEMENTS OF VOCATIONAL PROGRAM QUALITY

Paul B. Campbell
Phyllis Panzano

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210-1090

1985

FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education, Information for Planning and Policy Development
Contract Number:	300830016
Project Number:	051OC40060/051OC40061
Act under Which Funds Administered:	Education Amendments of 1976, P.L. 94-482
Source of Contract:	Office of Vocational and Adult Education U.S. Department of Education Washington, DC 20202
Contractor:	The National Center for Research in Vocational Education The Ohio State University Columbus, Ohio 43210-1090
Executive Director:	Robert E. Taylor
Disclaimer:	This publication was prepared pursuant to a contract with the Office of Vocational and Adult Education, U.S. Department of Education. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Department of Education position of policy.
Discrimination Prohibited:	Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title IX of the Education Amendments of 1972 states: "No person in the United States shall on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Therefore, the National Center for Research in Vocational Education Project, like every program or activity receiving financial assistance from the U.S. Department of Education, must be operated in compliance with these laws.

TABLE OF CONTENTS

Page

LIST OF FIGURES v

FOREWORD vii

EXECUTIVE SUMMARY ix

CHAPTER 1. INTRODUCTION 1

- Some Preliminary Considerations 1
- Conceptual Framework 3
- Organization of This Publication 6

CHAPTER 2. EDUCATIONAL OUTCOMES OR GOALS 7

- Individual Outcomes 7
- Societal Outcomes 9
- The Place of Vocational Education 12

CHAPTER 3. THE EDUCATIONAL EXPERIENCE 13

- General Definition of the Educational Experience 13
- Elements of School Context 15
- Elements of School Process 19

CHAPTER 4. ASSESSING QUALITY OF VOCATIONAL EDUCATION 23

- Introduction 23
- What Is Quality? 23
- Approaches to Assessing Quality 24
- Developing Indicators of Quality 26
- Summary 28
- The Framework: Elements of Quality Vocational Education 30
- Assessing the Quality of Vocational Education 31

REFERENCES 33

LIST OF FIGURES

Figure

1. Framework identifying the elements of vocational education quality 4
2. Elements of quality of school context 16
3. Elements of quality of school process 20
4. Examples of quality indicators 29

FOREWORD

Traditionally, vocational education program quality has been defined (1) in terms of the output of the program (e.g., training-related jobs obtained by former students, satisfied employers) or (2) as the process of the program (e.g., time spent on learning tasks, skill content addressed). Both of these are logically related to quality, but neither one by itself provides an explanation of quality that is sufficient to influence policy toward quality improvement.

This publication provides a discussion of the elements of quality in vocational education as viewed in the context of formal education. Reviews of these elements by knowledgeable practitioners and recommendations related to the development of quality indicators are also included. It is an attempt to conceptualize a comprehensive framework for evaluating vocational education quality. The report is intended to inform policymakers of the breadth of the elements of quality and to suggest an integrated framework for assessing quality to vocational education evaluation theoreticians.

This project was conducted in the Evaluation and Policy Division of the National Center for Research in Vocational Education under the direction of N. L. McCaslin, Associate Director. Many people made significant contributions in the course of its completion. We wish to thank for their participation in our field discussions Dr. Nellie Dry, Dr. George Mehallis, Charlotte Hayes, and David Hall, associated with Broward Community College in Ft. Lauderdale, Florida; John Ryan, Ron Smith, Joe Fabing, and Billy Keith Butt, associated with Tri-County Joint Vocational School in Nelsonville, Ohio; Dr. Dwight Davis, Marvin Bausman, Dan Sczygelski, Larry Post, and Cindy Pogachnick, associated with North Central Technical Institute in Wausau, Wisconsin; Dr. Jim Frasier, Nelson Whitemen, Harold Darling, Harold Pearson, and Beth Allen, associated with Patterson Cooperative High School in Dayton, Ohio; and Ray Bertleson, John Miller, Marilyn Gordon, and Matt Medlock, associated with Westerville South High School in Westerville, Ohio.

We also acknowledge the contributions of National Center staff members Roy Butler, Ida Halasz, N. L. McCaslin, Allen Wiant, and Jane Reisman and the field work of Cathy Warmbrod and Jim Hamilton, which was instrumental in the development of our model.

David L. Passmore, professor of vocational education, The Pennsylvania State University, George Quarles, former Director of Vocational Education for New York City, and Robert H. McCabe, president, Miami-Dade Community College, provided helpful criticisms and suggestions related to the overall context and outcomes of our conceptual framework.

We wish also to thank the project staff—Paul Campbell, project director, Jim Hamilton, Cathy Warmbrod, and Phyllis Panzano for their work in preparing the publication. And finally, we thank Jeanne Desy for her comments related to the organization of the report, Mary Beth Dauner for her effort, cooperation, and patience in typing the manuscript with its many revisions, and Janet Kiplinger, under whose supervision the publication was edited.

Robert E. Taylor
Executive Director
National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

The elements of quality proposed in this publication have been derived from a diverse body of literature and experience. We have attempted to incorporate various findings related to attributes of quality education and programs into a general yet comprehensive conceptual framework in order to broaden our understanding of the elements of quality vocational education. It will contribute to an increased awareness of the major components influencing the quality of education. This publication is intended to inform policymakers of the breadth of the elements of quality and to suggest an integrated framework for assessing quality to policymakers and vocational education evaluators.

For purposes of this effort vocational education was defined as school-related activities that occur in secondary schools and 1- and 2-year programs in postsecondary schools; vocational education was considered to be a subset of general, formal education, which in turn is a subset of education coming from a variety of life experiences.

Our framework for the elements of quality grew out of a multiphased process that included reviews of related literature, expert input, and key informant interviews. The literature provided preliminary structure to the framework that was further refined and defined by expert opinion and key informant commentaries.

Some vocational education has been directed by law to be evaluated in terms that include job placement in training-related employment, employer satisfaction, and quality and availability of instructional offerings. This effort, however, initially explored a variety of desirable outcomes that may help to define high quality vocational education programs and subsequently identified the components of the educational environment that may support attainment of those outcomes. The outcomes were therefore considered as goals and the structures and processes within the educational environment were perceived as means for achieving the goals. The resulting framework for the elements of vocational education quality (figure 1) was conceptualized as a complex environment converging on the educational experience, driven by desired individual and societal outcomes, and influenced by environmental inputs such as community setting and labor market conditions.

The Framework: Elements of Quality Vocational Education

Elements of Quality Outcome

Two general types of outcomes are included in our framework: individual and societal with a subset of societal outcomes specific to employers. Four elements of quality relating to individual outcomes were identified and defined. *Competency development* encompasses the development

of work-related skills (both occupational and job specific), basic skills such as verbal and mathematical, and general problem-solving ability. *Positive interpersonal interaction* involves the ability of people to have positive and mutually supportive relations with others in the home, the workplace, and the community. A *sense of efficacy* is an attitude of confidence in one's ability to utilize skills to achieve goals. The ability to manage a large array of tasks without having to depend upon someone else is designated as a *sense of independence*. These are the four general elements of quality individual outcomes included within our conceptual framework.

Social stability and *employer needs* are the primary elements of quality within the societal outcome portion of our framework. Social stability does not imply social stagnation; rather, it means gradual, orderly change. *Provision of essential services*, *quality of work products*, *resources for self-support*, and *societal improvement* are the subelements that support social stability.

We also examined a subset of societal outcomes specific to employers. To be worth the investment from the employer's point of view, vocational education should contribute to *available skills*, *reduced training time*, and *high productivity*. These are the three elements of quality related to employers needs. Our definition of quality vocational education outcomes includes, but is not limited to, employment-related skills. Rather, vocational education of a positive quality must also enhance the development of desirable or even essential skills or dispositions that are not directly employment related.

Elements of Quality within the Educational Experience

Taking a systems perspective, the processes and structures that define the elements of quality within the vocational education experience should relate to intended individual and societal outcomes. Our model divides the educational experience into two domains, *school context* and *school process*. School context deals with both physical and organizational aspects of the school unit. Personnel, facilities, equipment, policies, and formal organizational structure all fall within school context. The elements of quality within school context that are formally included in our model are *school setting*, *classroom setting*, *teacher skills*, *teacher characteristics*, and *peer group characteristics*. Figuratively speaking, school context provides the setting for school process, which provides the "action." Estimations of quality of school process would consider such things as course content; course-specific equipment; interaction between teacher, student, and materials; and level of formal student involvement in the vocational education program. The elements of quality formally included within school process are *teacher, student, and material interaction*; *instructional content and material*; and *student utilization of instructional process*.

These elements of quality within the educational experience should relate to intermediate objectives that, in turn, should support attainment of desired outcomes; the linkage should be systematic between quality of experience and quality of outcome in order to maintain and replicate effective programs and make modifications as necessary.

Assessing the Quality of Vocational Education

The elements of quality within our framework are generalizable across school unit and program. However, the specific indicators of quality associated with them may vary across school and program and are likely to vary over time.

Considerable effort has been expended in developing evaluative strategies to facilitate the assessment of quality. Evaluation models should combine structural, process, and outcome approaches in order to assess the range of elements of quality within our framework.

Specific indicators of quality need to be developed at the individual school unit level. It is not practically possible to tabulate exhaustively all the indicators related to the elements of our model, nor is it financially practical to support an evaluation system capable of gathering and analyzing such data in a complete form. A process for identifying and prioritizing subelements within the model is suggested as a practical starting point for developing indicators. A combination of quantitative and qualitative methods is suited to a comprehensive evaluation of quality, and both normative and empirical approaches should be drawn upon for developing indicators.

In summary, this discussion presents a justification and set of procedures that will permit an integrated consideration of the elements of vocational education quality. We have advocated considering a broad set of elements of quality rather than a narrowly defined or segregated set, so that the evaluation of vocational education reflects its contribution to a set of living experiences in addition to employment.

CHAPTER 1

INTRODUCTION

Some Preliminary Considerations

What Is This Publication About?

When determining whether or not a program of instruction is producing the desired outcomes, it is first necessary to decide what those outcomes should be. Vocational education has been directed by law to be evaluated in terms of job placement in training-related employment and employer satisfaction. Although both of these outcomes are reasonable as well as legally required, there is a large body of opinion that extends the desired outcomes beyond that limited set. This publication advocates such an expansion for the purpose of evaluation, explores a variety of potentially desirable outcomes that may help to define a high-quality vocational education program and identifies those components of the educational experience that may support attainment of those outcomes.

The elements of vocational education quality may be found in two places—the outcomes of the educational experience and the educational experience itself. In this discussion we present a tentative set of outcome goals, with some description of their nature and justification for their selection. The justification relies upon normative premises, empirical and theoretical evidence, and, in some cases, intuitive logic. Because the processes and structures that presumably define the educational experience should relate to the intended outcomes, the outcomes are considered first. A similar consideration of the processes will be the topic of a subsequent chapter.

We are attempting to conceptualize a *general* yet *comprehensive* framework for assessing vocational education quality. It will contribute to an increased awareness of the breadth of the components that influence the quality of education.

What Is Vocational Education?

Before proceeding with a search for elements of quality in vocational education, some fences must be erected around the varied terrain of ideas and activities to which the label "vocational education" is attached. From a narrow point of view, vocational education is considered by some as only those school-related activities that are the recipients of Federal funds under the vocational education acts beginning with the Smith-Hughes Act in 1917. On the other hand, it may be considered as any school-related activity, through graduate and professional schools, that provides skills for employment in a specific field—from machining to medicine, or from cooking to counseling. For purposes of this inquiry, we have elected to limit consideration to those school-related activities that take place in secondary schools and in 1- or 2-year programs in postsecondary schools. These school activities that we classify as vocational education include—but as we intend to show subsequently—are not limited to programs that produce salable skills specific to general classes of occupation. They may or may not be supported by Federal funding.

Where Does Vocational Education Fit?

We consider vocational education to be a subset of general, formal education, which, in turn, is a subset of education coming from a wide variety of life experiences. At the secondary level, it is part of a universal and obligatory educational experience. It is universal in most Western democracies because

provision is made in the laws of these States to provide it for nearly everyone. The most usual exception occurs where some extremely severe mental or physical problem renders formal education impractical. Education is an obligation because most of these States require some level of compulsory attendance.

At the postsecondary level, the obligatory feature of education is completely relaxed. The universal quality is also much less apparent, although the general availability of public funds to support postsecondary institutions, at least in the United States, reflects a commitment to broaden the access of individuals to continued education.

What Should Be the Outcome of General, Formal Education?

To understand where vocational education fits within this scope of general, formal education, it is necessary to examine what the outcomes of general, formal education are expected to be. Frankena (1974) describes these outcomes as the formation of what he calls "dispositions" that include abilities, habits, beliefs, skills, and bodies of knowledge.

It is beyond the scope of this discussion to elaborate upon the basic normative premises underlying the selection of the dispositions that seem to be most universally valued in American society. Rather, those that have broad representation in the literature, in the media, and in practice suggest what appears to be the society's underlying values. If we consider both practice and commentaries, the currently existing values, as well as those desired, have a chance to emerge.

There seems to be general agreement that speaking, reading, and writing the majority language, as well as handling basic quantitative problem solving, are fundamental elements of the dispositions. At least some level of comprehension of the procedures of science and the political organization of the Nation, State, and community are also generally accepted. Some National reports (e.g., by the National Commission on Excellence, The Twentieth Century Fund) have additionally emphasized such other dispositions as computer literacy and foreign languages.

That acquisition of the foregoing dispositions (e.g., language, math) is necessary for a good and productive life seems to be supported by the observable, normative premises. There is no general agreement about how all of these basic skills should be provided, but the presence of some elements of language, government, science, and math curriculum in virtually all high schools underscores the importance attached to formal study of these skills by American society.

All societies are made up of individuals and of institutions that, at the time of their founding, were intended to provide some form of service to individuals. (This purpose may have been lost to self-perpetuation as the institutions developed.) American society, in which the form of vocational education being examined is set, has a long tradition of emphasis upon the individual. Illustrative are the writings of Thomas Jefferson on the need for an educated citizenry, Abraham Lincoln's eloquent reference to "government for the people, by the people, and of the people" in the Gettysburg address, and John Dewey's concern for the role of the individual, expressed in the following quote:

> Such societies were found to be democratic in quality, because of the greater freedom allowed the constituent members, and the conscious need of securing in individuals a consciously socialized interest, instead of trusting mainly to the force of customs operating under the control of a superior class. The sort of education appropriate to the development of a democratic community was then explicitly taken as the criterion of the further, more detailed analysis of education. (Dewey 1916, p. 322)

In this society, education is focused upon individuals and seems to have two basic goals—to help individuals maximize their well-being in a broad sense and to provide a stability in the society through ensuring the well-being of its members collectively.

An argument may also be made that work is necessary for the good and productive life. As John Gardner (1961) puts it, "The best-kept secret in America today is that people would rather work hard for something they believe in than enjoy a pampered idleness." Although the context of Gardner's remark is the need to invest human energy in improving society in general, it applies to vocational education, which can and does address directly a specific inclination to work that serves both societal and individual ends. One can easily recall numerous expressions of the desire to work ranging from expectations to continue working expressed by lottery winners, through the search for part-time jobs by retired persons, to the pride with which workers display tangible results of their efforts. Vocational education provides specific training that enables people to work, and thus addresses the individual's need represented by these expressions as well as society's need for the outcomes of an individual's work.

Vocational education cannot be pursued, however, at the expense of some acceptable level of the broad basic dispositions that were detailed earlier. That these are generally valued is evidenced by their prevalence and also by their support by National sounding boards. To quote Dewey (1916) again:

> Put in concrete terms, there is danger that vocational education will be interpreted in theory and practice as trade education: as a means of securing technical efficiency in specialized future pursuits.
>
> Education would then become an instrument of perpetuating unchanged the existing industrial order of society, instead of operating as a means of its transformation. The desired transformation is not difficult to define in a formal way. It signifies a society in which every person shall be occupied in something which makes the lives of others better worth living. (p. 316)

The National Commission on Secondary Vocational Education seconds Dewey's concern—"Vocational education should not dilute the student's general education nor disenfranchise certain groups through selective enrollment" (1984, p. 11). Therefore, vocational education as we have defined it is part of the broader concept of education with its general goal of individual and societal well-being. It shares with general, formal education the dispositions that are presumed to lead toward these two aspects of well-being.

Conceptual Framework

Before going further, it may be useful to consider the overall setting in which vocational education operates. Figure 1 has been prepared to illustrate one schematic of the conceptual framework. Briefly, figure 1 displays three critical components of the overall setting. The left-hand panel displays the major dimensions of the context. These are conditions that exist independently of, and in most cases, prior to, participation in vocational education. Although the figure does not make it explicit, the general context continues to operate beyond formal education and influences independently the effectiveness of the outcomes in accomplishing the goals that underlie a conception of quality. The central panel displays the major dimensions of the vocational education setting. Three categories comprise this panel. They are the school-specific context, the teaching-learning process, and the formal utilization of that process by the student. The right-hand panel displays a set of outcomes. These are divided into two major categories, individual and societal.

The outcomes panel is discussed first in this report. Discussion of the school setting,

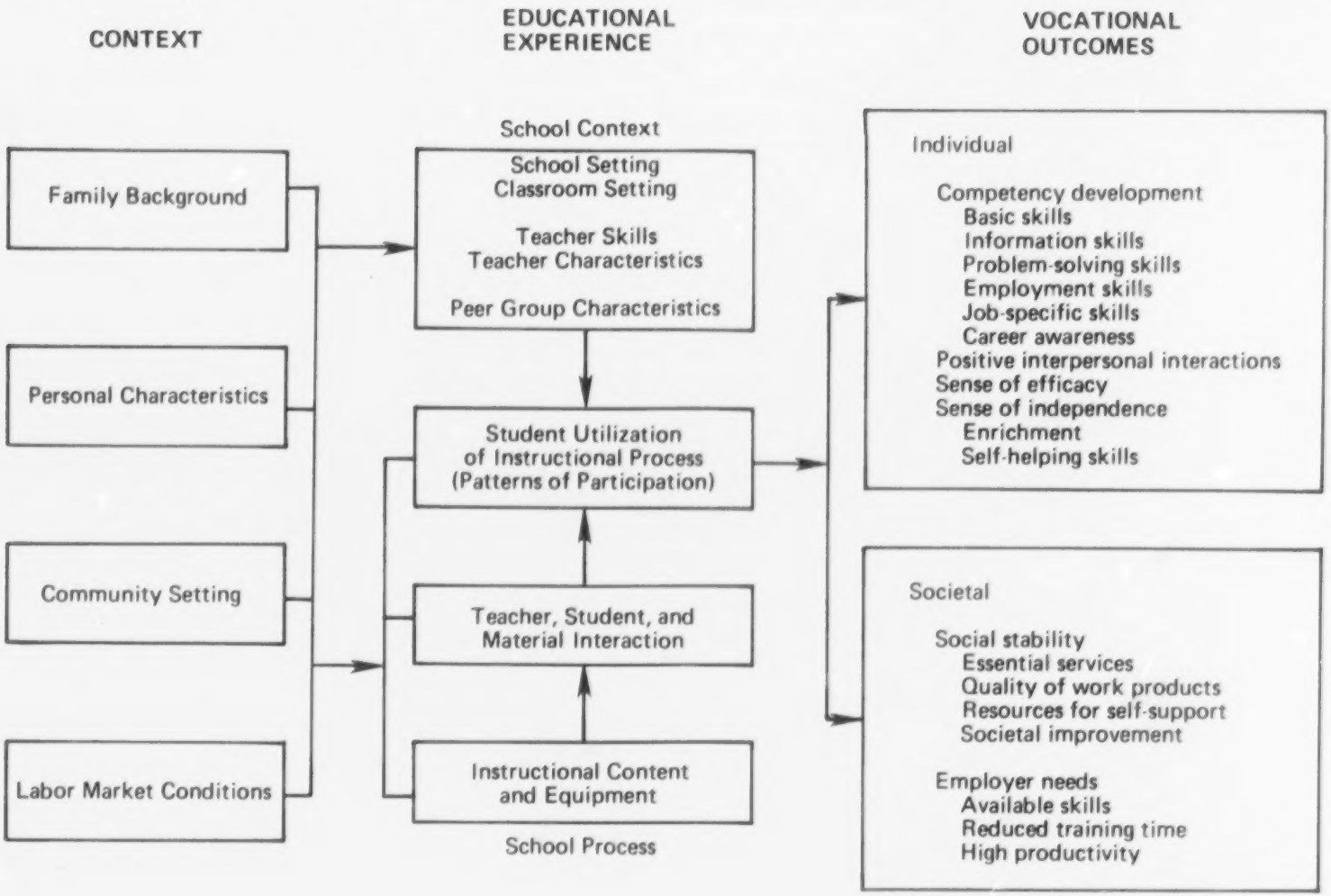

Figure 1. Framework identifying the elements of vocational education quality

teaching-learning process, and student utilization will follow. The overall approach can best be understood, however, if the conceptual framework is kept in mind.

The approach taken here assumes a functional role for education, rather than a sorting or conditioning role (e.g., Bowles and Gintis 1976) or a role of securing a privileged position in the job queue (Thurow 1975). Human capital theory might be regarded as the basis for this approach, but we take the position that rational decisions in investing for desired returns are not sufficient to capture the overall value and meaning of human existence. Thus, although our discussion will be in many respects consistent with human capital conceptions, we do not limit ourselves to expressing the values we have accepted nor the outcomes we discern as having normative value, within the confines of that theoretical perspective. In other words, we accept an altruism that values human existence in its own right, independent of economic interpretations.

We also recognize that the institutions delivering formal education reflect the conflicting forces and differences of opinion that permeate the society. They well may serve as a sorting mechanism, in part a function of their time-bound nature and the imperfect professionals who structure the experiences for students within them. The results of acquiring the dispositions may be interpreted by employers as proxies for the ability to learn new skills as yet unknown. As a consequence, noncredentialed workers may be displaced or not hired, even though they possess the needed skills or ability to learn. These conditions reflect the imperfections of the enterprise that we seek to understand in order to improve. *We therefore consider the outcomes as goals and the processes as ways to move closer to the goals.*

Modeling the Elements of Vocational Education Quality

The proposed framework for the elements of vocational education quality was the result of a multiphased process. A review of the literature, expert judgment, and key informant interviews provided input to the modeling process.

The literature on effective school research and related subjects was the initial source considered in developing the model. Although the literature directly relating to and identifying the elements of vocational education quality was quite segmented, references were discovered that addressed virtually all the major components of our framework. The content of the references ranged from general observations and comments about effective programs to suggestions for specific indicators of quality. Related references were subsequently grouped and the resulting significant clusters were incorporated as model components or elements.

To illustrate briefly the method by which references were utilized in model building, consider the following examples. Miller (1984) and McKinney et al. (1981) comment that effective schools are characterized by total commitment of the school unit to quality programs. This reference could be generally classified as an organizational characteristic of school setting. More specifically, it could be considered as an example of a general policy statement that is common to quality programs. References were also found relating to organizational structure (Westbrook 1982) and strategy (Benson 1982). This type of information was subsequently utilized to build a preliminary general framework of school setting that was structured as follows:

- Organizational Aspects
  - —structure
  - —policy
  - —strategy

As more information was gathered, a physical aspect of school setting was also identified, structured, and added to the model. The process was followed and eventually resulted in a preliminary, systematic framework identifying the elements of vocational education quality.

Experts in the field were involved in model definition through normative group processes, modified Delphi approaches, and individual review. Expert input was utilized to cross-validate components suggested by the literature, to suggest additional components to our model, and to develop more detailed definitions of components.

The final source of information was key informant interviews. Nine administrators, six instructors/department heads, and six program graduates representing secondary and postsecondary vocational education programs participated in an unstructured interview process. Interviews were conducted as open discussions on the topic of "Quality Vocational Education." The role of the interviewers was to keep the discussion focused on the general topic and to provide prompts or suggestions for related discussion.

In observance of Federal regulations regarding over-collection of information, the sample size was intentionally kept small. Even though they were not technically representative of the population of interest, the interviews were valuable to the model-formulating process. Interviews were content analyzed and informally used to cross-validate the basic model suggested by expert judgment and the literature. Interview information also aided in defining the components and elements of quality and in providing examples of potential indicators of quality.

In summary, our model was developed through a synthesis of the information gathered from experts, practitioners, and related literature. The model is proposed as an attempt to define in an integrated fashion the people, processes, and structures that define the elements of vocational education quality.

Organization of This Publication

The remainder of this publication is divided into three chapters. Chapter 2 introduces and defines the elements of quality related to educational outcomes that were identified through the previously described model-building process. Chapter 3 parallels chapter 2 in structure, but focuses on the elements of quality related to the educational experience. Finally, chapter 4 presents some issues and guidelines regarding the development of quality indicators for the elements within the proposed model.

CHAPTER 2

EDUCATIONAL OUTCOMES OR GOALS

Two kinds of outcomes or goals are suggested in figure 1: individual and societal, with a subset of societal outcomes specific to employers. They are not presented as exhaustive, but were selected to represent the key elements deemed necessary for a productive and satisfying life.

Individual Outcomes

Within the parameters of individual outcomes are several components. The first of these is called *competency development*. Aspects of this outcome include the development of work-related skills, both occupational and job specific. They include the development of the basic skills suggested earlier in this paper as being part of the general right of individuals and obligation of education. They also include the development of general problem-solving ability.

It should be understood that, as stated earlier, the development of the more recognizable vocational skills is not confined to formal education, either secondary or postsecondary; rather, both of these levels provide avenues for their development. The processes (methods) currently employed to develop the necessary dispositions in the basic skills, again using Frankena's terms (1974), are primarily those of formal education. This premise is supported by law, by published opinion, and by traditional practice.

Examples of the occupational and job-specific skills are such things as drafting, keyboarding, engine troubleshooting, programming, and crop planning. There are also more general, occupation- and job-related skills that include knowledge of the world of work, job search strategies, interview protocol, and work conventions (arriving on time, following work rules). In most work situations, some ability to communicate using either spoken or written language is necessary. In many, the solution of quantitative problems is another significant element. The general ability to make appropriate judgments about the consequences of one's actions has major importance. Also, a recognition of fundamental relationships that are the stuff of science plays a part, whereas specific understanding of certain chemical, physical, biological, and economic laws figures in the world of work in many instances. For example, failure to understand the role of soil nutrients leaves the development of a crop to happenstance. Or, the likelihood of a business failure is increased by not understanding that when costs exceed revenues, the enterprise is bound to fail when its available capital is depleted to a critical level. Competency development is judged to be a key component because it provides the individual with a currency to exchange for needed goods and services, the necessary dispositions to accomplish self-services independently of other people, and the ability to add to the context of life in a positive way through contributions to society.

Another individual competency with increasingly important potential might be identified as "information skills."* As the society changes from an industrial base to an information base, a great variety of new sources and kinds of information become important—and as jobs change, these alterations frequently require accessing new information. The need for this skill is implied within many of the basic skills, but it is worthy of emphasis as a separate and distinct skill because of its importance. It includes

*This conception was contributed by one of our reviewers, Robert McCabe, President, Miami-Dade Community College.

finding, evaluating, applying, and communicating information. It will apply not only to stability and growth within a vocation, but also to other aspects of living as well.

The second component, *positive interpersonal interaction*, permeates not only the work role of individuals but also the total life space. Here individual fulfillment of nearly all people depends on having positive and mutually supportive relations with key people whose lives mesh with theirs in the workplace, the home, and the larger community. To do this, they need to be able to communicate, to be sensitive to the impact that they have on their colleagues, and to develop and maintain a sense of shared responsibility.

A wide range of interpersonal interactions might be labeled positive. At the one extreme are those people, some employers among them, who want docile response to requests and directives. At the other are those who demand individual assertiveness without regard for the consequences to others. We define positive, interpersonal actions as being neither of these extremes but rather a set of behaviors involving other people. These behaviors are adjusted to the circumstances, but the individuals do not accept indefinitely repressive situations: they are responsive to the needs of others, but not insensitive to their own fulfillment. This point of view is analogous to Sternberg's (1984) contextual subtheory of adaptation, selection, and shaping. According to Sternberg's theory, individuals first try to adapt to their environments. If this is impossible or undesirable, they try to select a new environment. Should that not work out, they try to adapt the environment to make it a better fit. Positive interpersonal relations involve activities of this kind. We do not assume, however, the order implied here. We do assume that the disposition or behaviors required can be developed, rather than being inherent.

A summary of research consistent with a definition of this sort is also found in Tennyson et al. (1980). These authors consider both the work situation and other social settings. They identify the functionality of positive interpersonal relations, which they call "mature," in a variety of settings. In particular, they imply that better problem solving will result from those mature relationships because less effort will be spent on defensive reactions and more on eliciting information and developing solutions. These constructive actions will lead to reduced conflict and less occurrence of defensive behavior.

A third individual outcome that we postulate is a *sense of efficacy*. Stated simply, it implies that individuals not only have some skills, but also sense their ability to use them to accomplish something. They expect to be able to get a job, to accomplish tasks deemed to be worthwhile, and to exercise a reasonable degree of control over their immediate personal environment.

Beginning with the postulations of Kurt Lewin that the likelihood of undertaking a task is related to an individual's perception of the likelihood of success, the role of a sense of efficacy in motivation has been detailed by numerous researchers. (For example, see Kelly 1967; Wong and Weiner 1981; Taylor 1983.)

The theories developed by these researchers and the evidence they have examined strongly suggest the importance of a sense of efficacy. In contrast, the concept of learned helplessness (Abramson, Seligman, and Teasdale 1978) and of its consequences illustrates the debilitating effect of the opposite pole of the efficacy continuum. Also, there is empirical evidence that a sense of efficacy is associated with certain aspects of job satisfaction. For example, a recent study of job satisfaction, utilizing the National Longitudinal Survey Youth data (Campbell et al. 1982) found a consistent association between four different forms of job satisfaction and scores on a scale that included items such as "I'm able to do things as well as most other people." These examples of theoretical and empirical evidence add to a normative and humanistic concern for the qualities of individual satisfaction to

support the inclusion of a sense of efficacy as a major individual outcome of formal education.

The fourth major outcome for individuals includes to some degree the preceding three. It is designated as a *sense of independence*. It means that the individual can manage a large array of ordinary tasks without having to depend upon someone else. It means that a man can provide a balanced meal when needed and that a woman is not helpless when confronted with a flat tire. It means that the individual chooses among alternatives rather than being channeled along a single pathway of life episodes.

A sense of independence has a strong normative background demonstrated in such diverse documents as the Declaration of Independence and the literature on therapeutic counseling. Its relationship to specific work life as well as its role in the general quality of life is suggested by a variety of evidence. It is reportedly related to job satisfaction among adults. For example, in a recent study, Hills and Crowley (1983) found that a sense of independence, operationally defined as a sense of autonomy on the job, was significantly related to a scale score of job satisfaction. This result is a further verification of Robert Blauner's classic study, *Alienation and Freedom* (1964). Katzell (1979) also provides an analysis of the growing awareness of the legitimacy of this sense among the current work force. Although these relationships do not establish a sense of independence as a goal, they document its pervasiveness as a human value, which, in our judgment, is the ultimate criterion for justifying it as a goal. (See also Taylor [1974] for a discussion of the logical and philosophical basis for this contention.)

These four individual outcomes rest upon a class of intermediate outcomes that are not so much ends in themselves but are necessary in some form in order to attain the more fundamental results. Examples are the development of *self-helping skills* (tire changing, cooking, keyboarding), *information about alternatives* (career awareness), and the broadening of each individual's repertoire of *knowledge* (enrichment). Vocational education functions with respect to these outcomes in varied ways. In some cases, it may be the sole, school-based source of opportunity to achieve the outcome (cooking). In others, achieving the outcome may be shared with alternative curricula (general, academic) in the formal school setting.

Societal Outcomes

The societal outcomes are five in number. In order of generality, *social stability* is probably highest. It is necessary for the other intermediate outcomes to be possible, but it also depends, at least in part, upon their attainment. By social stability we do not mean social stagnation. Rather, we mean gradual, orderly, and nonviolent change, with expectations within the society being reasonably predictable, at least for a long enough period that changes may be planned, rather than being unpredictable shocks. Neither education in general, nor certainly vocational education in particular, can accomplish this outcome alone, but the experiences that occur in vocational education should meet the test of a positive contribution to social stability.

The remaining four societal outcomes are much more specific. They represent products that can be addressed quite directly by vocational education.

Providing essential services to the society is an obvious need. Trained people in health care, information processing, and the highly skilled components of durable manufacturing are needed for a smoothly functioning, modern society. It is recognized that not all essential services are provided through the labor market or through paid work. The quality of a society also rests heavily upon those services that are provided in the home and by volunteers in various roles.

Although it is true that services viewed as essential by the majority of the society are probably available through some form of enterprise that becomes part of the labor market, not all services are so provided. Many are available both on a paid basis and on a donated basis. Numerous examples exist of the latter, all of which contribute to the quality of life in a society but do not require an exchange of money, goods, or services. Volunteers often provide some form of nursing care to sick patients, technical advice to amateurs on home repair, free assistance on car repairs, free garden produce, snow shoveling, attentive concern to people in trouble, family management, parenting, teaching (e.g. church school, informal music lessons), advice on nutrition, politics, and ways to cope with a complex society. Whether government policies and professionals in these areas concur or not, these volunteer activities do take place and will continue to do so. Education, both formal, general, and vocational, becomes one of the mechanisms through which volunteers can learn appropriate skills and roles and can therefore contribute to the well-being of the society.

Establishing a scale of values for outcomes of this sort is not easy. This difficulty, however, is a very inadequate reason for ignoring the contribution made by the nonlabor market elements of the society. The presence or absence of skills, and reports of engagement in nonpaid volunteer activities, may provide a gross estimate. Some attempts have been made to place dollar values on such services (e.g., the value of homemaking) but to a very large degree the problem is unresolved. Nevertheless, the contribution is too great to ignore.

Closely related to the essential services is the outcome termed *quality of work products*. It extends beyond the tangible and material quality of things to the quality of services provided. A disillusionment with quality in this broad sense leads to an erosion of stability and a reduction in the overall quality of life for the society as a whole.

We are not aware of a body of literature that specifically documents this assertion, but several examples will illustrate the intuitive logic of this position. First, consider the current plight of the automobile industry. Beginning in approximately 1974, the declining demand for American automobiles became increasingly recognized. One result was that the market for replacement automobiles began to decline as consumers chose to retain the vehicles they owned rather than pay higher prices for less satisfactory vehicles. This, in turn, reduced the effectiveness of pollution control devices because nonequipped automobiles stayed on the road longer. It also reduced the contribution of the auto industry to the economy and was a large factor in the turn toward imported autos, which further eroded the economy within the United States. Ten years later the consequences are still strongly felt.

A second example applies to a service area. Suppose a child from a low socioeconomic status family is having serious achievement trouble in school. The mother visits the child's teacher to see what can be done. Both the mother and the teacher are sincerely interested in the child's welfare. But the teacher does not know how to empathize and communicate with the mother, and the mother is made to feel inferior and inadequate. She therefore avoids continuing school visits, and, as a result, the real contribution she could make is lost. The child's education continues to suffer.

A third example, in an entirely different area, concerns a hypothetical situation in the delivery of medical care. A patient goes to a physician's office with an annoying but not too painful ailment, as yet undiagnosed. The patient is treated with perfunctory courtesy. More attention is given to the ability to pay than to diagnosis of the ailment, and the physician appears to be hurried and not very interested. The next time the symptoms appear, the patient puts off seeking medical service until a serious and perhaps irreversible condition develops.

We have emphasized in these examples the service products more than the tangible products. Deterioration in the quality of either contributes to the disruption of society through disillusion with its institutions, through displacement of people (witness the Michigan-Arizona migration phenomenon as displaced auto workers sought jobs in the Southwest), and through more extreme disruptions such as riots, hijackings, and the organizing of private armies.

These results are, of course, not attributable to lowered product quality alone, but such a phenomenon increases the potential for serious societal consequences.

The third outcome suggested in figure 1 as relating to social stability is the accumulation of the necessary *resources for self-support* by the substantial majority of the members of a society. The proportion of the society engaged in productive work that may be exchanged for other goods and services is a function of both the standard of living and the productivity of the society.

If individual productivity is relatively low and the desired standard of living is high, then proportionately more persons will need to be employed in a self-supporting way in order to carry the remaining members of the society at a similar level. Conversely, a smaller proportion of more highly productive self-supporting people can carry the remaining members assuming the standard of living stays constant. If, however, the standard of living is lower, less individual productivity is necessary to maintain the living standard. In immediate and practical terms, the actuarial difficulties of the Social Security system illustrate this problem. As the proportion of retired workers who are no longer productive rises in relation to those paying Social Security taxes, the Nation is forced to choose some combination of four alternatives:

- Accept a lower standard of living due to higher taxes and inflation
- Impose a lower standard of living on the retired group by maintaining a fixed income level despite inflation
- Increase sharply the productivity of the working group
- Encourage continued productivity of the retired group

It is again difficult to specify just how progress toward this goal should be measured. However, a reasonable goal to which vocational education should contribute is the increase or maintenance of such a productive majority.

A society in which every individual contributes to his or her own betterment also contributes to the betterment of the lives of others in that society. This is what is meant by *societal improvement*—working as individuals to improve the quality of life for the aggregate. This type of positive growth is considered necessary in order for a society to sustain itself rather than stagnate. Thus, societal improvement is the final critical element supporting social stability.

Societal Outcomes Specific to Employers

A subset of the societal outcomes are those that impact employers directly. To be worth the investment from the employer's point of view, vocational education should contribute to ensuring that needed skills are available, that on-the-job training time for graduates of vocational programs is less than for those without such training, and that the productivity of these trained workers is higher than that of untrained workers. To date, the evaluation of vocational education has been largely limited to factors such as these, while ignoring the numerous other outcomes suggested in figure 1. It is our judgment that although these outcomes are necessary in the paid work market, they are not sufficient for assessing the quality of vocational education there or in the other defined outcome areas.

The Place of Vocational Education

We began this discussion by considering the role of vocational education as a part of the broad concept of education in general. We have not been willing to accept a narrow definition that divorces the training in specific, employment-related skills from the education of a person for all aspects of living. Thus, our definition of vocational education includes, but is not limited to, employment-related skills. Development of those skills is a necessary, though not sufficient, component of vocational education as we see it. This leads to a recognition that vocational education of a positive quality must develop employment-related skills; it may not substantially interfere with the development of desirable or even essential skills or dispositions that are not directly employment related; and it should, to the extent possible, enhance those dispositions. (For a succinct, normative discussion of some of these dispositions, see Thimmesh 1984.)

At the secondary level, vocational education competes for class time with other electives and with required courses that reflect American society's collective judgment about what is basic and essential. At the postsecondary level, a similar competition is present in the planned sequences but is less enforced because of the greater legitimacy of taking one or two courses for immediate personal goals and then discontinuing the program.* These conditions require that vocational education share responsibility for the kinds of goals shown in figure 1, although it cannot be held responsible for their complete attainment, nor can the larger subset of formal education. It logically follows that the quality of vocational education can only be assessed by taking into account its role in the larger context.

*In addition, some people assume that some of the goals have already been attained by the time of secondary school completion and consequently need not be readdressed at the postsecondary level.

CHAPTER 3

THE EDUCATIONAL EXPERIENCE

General Definition of the Educational Experience

The vocational educational experience involves a network of interrelated and interdependent people, processes, and structures. A complex environment comprising a number of interacting parts, it functions within the general education system and within a much larger environmental context. In order to determine whether the environment is operating effectively in achieving desired individual and societal outcomes and in order to make improvements in the educational experience as a whole, it is essential to understand how each part functions, both independently and interdependently. Thus, defining in detail the elements of quality in the educational experience is a critical step toward achieving these ends.

The conceptual framework proposed in figure 1 provides a starting point for discussion. The educational experience represented by the central panel of the model is situated within the larger context of environmental inputs and outcomes shown in the left-hand and right-hand panels. The central panel is divided into "School Context," displayed in the uppermost cell, and "School Process," represented by the three lower cells of the panel. The components listed within all four cells define the boundaries of the school context and school process domains.

School Context

School context deals with both organizational and physical aspects of the school unit. It is represented in figure 1 as the first cell in the central panel. Personnel, facilities, equipment, policies, and formal organizational structure are general elements of school context.

School context sets the stage for school process and can best be described through illustration. The following two *fictitious* "context" scenarios help to show the place of school context within the overall educational experience.

The development of Middletown Technical Institute (MTI), a postsecondary vocational education school, was a direct outgrowth of current and projected needs of business and industry in Middletown, U.S.A. Goals of the school and its individual programs were developed by a committee that included educators, administrators, students, parents, and representatives of business and industry. Consideration of school and program goals influenced the design of the physical structure of the school as well as the purchase of equipment. Local business and industry demonstrated support of MTI through generous donations of equipment and material. Selection criteria for instructors included technical experience and knowledge, formal training in education methods, enthusiasm for teaching, and other selected variables. An active business-industry advisory board helped MTI stay abreast of changing needs. Qualified counselors were charged with tailoring student programs to individual needs and assisting in job-seeking efforts. MTI enjoyed a favorable image in the community. There were more applicants to MTI than its programs could handle; student selection criteria were established to manage the demand overload.

Steeltown Vocational School (SVS), our second fictitious program, presents a much

different picture of school context. SVS is a postsecondary institution that was opened in the early 1950s to train skilled laborers for the local steel and machine tool industries. School and program goals have not been modified since its inception. The school building is a converted warehouse and the instructional staff is mainly composed of former supervisors of skilled laborers. Instructors have little or no formal education in teaching methods. The physical facility is in desperate need of repair having cracked walls and ceilings and antiquated plumbing, heating, and lighting systems. However, with enrollment and revenues down, there are no plans for making the needed repairs. Placement rates for SVS graduates are at an all-time low. Support from the community is virtually nonexistent; it is only a matter of time before SVS will be closed.

These scenarios help to illustrate the importance of school context in "setting the stage" for the educational experience. Personnel, facilities, equipment, and organizational structure are all part of the "context" of an educational facility and relate to the quality of a facility. The contrast between the school context of MTI and SVS was exaggerated in order to demonstrate the significance of context in the educational experience. A more detailed discussion of the components and elements of school context will appear later in this chapter.

School Process

If school context provides the setting, school process provides the action. Referring again to figure 1, school process is represented by the second, third, and fourth cells of the central panel. Cell 2, entitled "Student Utilization," relates to *patterns of participation* that are influenced by school context and school process (Campbell, Gardner, and Seitz 1982). Cell 3, "Teacher, Student, Material Interaction," combined with Cell 4, "Instructional Content and Equipment," defines the teaching-learning process.

Descriptions of school process include references to course content, course-specific equipment, and materials. Discussions of student-teacher, student-student, student-material interface, and level of formal student involvement in the vocational education school unit or program are also involved in a comprehensive description and analysis of school process quality.

The following description of a fictitious, comprehensive high school may help to illustrate the general boundaries of the school process domain.

Jefferson Comprehensive High School is viewed mainly as a college preparatory institution. Students are discouraged from formally entering the vocational education program, so those students that take vocational education coursework do so mainly as a diversion from purely academic course loads. Concentrators are generally held in low esteem by their peers and by the majority of academic program instructional staff. Vocational education instructors have little influence on purchase of instructional equipment and are forced to use out-dated textbooks and equipment. Students have limited opportunity for "hands-on" experience. These restrictions and limitations are also reflected in episodes of student-teacher, student-student, and student-material interaction. Instruction in vocational education courses appears to be a one-way process. Teachers dispense information and students absorb information; a feedback loop is virtually nonexistent between teacher and students. Typically, student-student interface consists of rubber band shooting, note passing, and joke telling. Because of the lack of support and resources for vocational education programs, there is a high rate of turnover of 'good' vocational education teachers. It seems that those who stay are the type who care little for the job and the well-being of the student.

This description touches upon the major components of quality in the school process

portion of the model. It provides a general "feel" for the school process domain and the potential effect of process on the overall educational experience.

Interrelationship between the Educational Experience and Outcome

The processes and structures that define the elements of quality within the vocational education experience should relate to intended individual and societal outcomes. The educational experience should increase the likelihood that desired individual and societal outcomes are achieved. In order to do so, a systematic understanding is required of the relationships between components of the educational experience and outcomes. This will allow the school unit to maintain and replicate effective programs and will promote systematic program modification as outcome indicators change.

For example, with the current emphasis on and movement toward electronic data processing both at home and on the job, computer literacy may eventually be included along with basic math, English, and so forth as part of basic skills. In turn, the addition of computer literacy should be reflected at the outcome indicator level and also in the form of school context and school process indicators. In other words, there should be a systematic linkage between desired outcome and experience; the educational experience should be responsive to changes in desired outcomes.

In order for the linkage to be systematic, the educational experience must be dissected into observable components or elements of quality that relate to intermediate objectives. Achievement of these objectives should support the achievement of desired outcomes. Thus, outcomes are considered as goals, and the educational experience as the way to move closer to the goals.

Elements of School Context

A number of components related to quality of education are classified within the school context and process domains of our model. For example, as figure 1 indicates, the components of school context are these:

- School setting
- Classroom setting
- Teacher skills
- Teacher characteristics
- Peer group characteristics

Each component consists of a set of elements defining its parameters. A thorough understanding of elements of quality is prerequisite to developing specific indicators of quality. Therefore, the elements of quality related to school context and school process will now be identified and discussed in detail.

School Setting

Our model proposes five components of quality within the school context domain (see figure 2). The first of these is school setting. School setting encompasses both physical and organizational aspects of the educational experience. The physical elements of school setting include the school building, the school property, and general equipment as opposed to program-specific equipment. Integrity of basic systems such as structural support systems, plumbing and heating systems, ventilation and lighting systems, and exterior and interior design features would be considered as part of the "school building." The second element, school property, deals with the adequacy of adjunct facilities, such as parking lots. The category of general support equipment is the third physical element related to quality of school setting. General support equipment is defined as equipment related to the functioning of the school unit as a whole and does not include equipment purchased for individual programs. Copy machines, telephones, file cabinets, and management related hardware and software are examples of general support equipment.

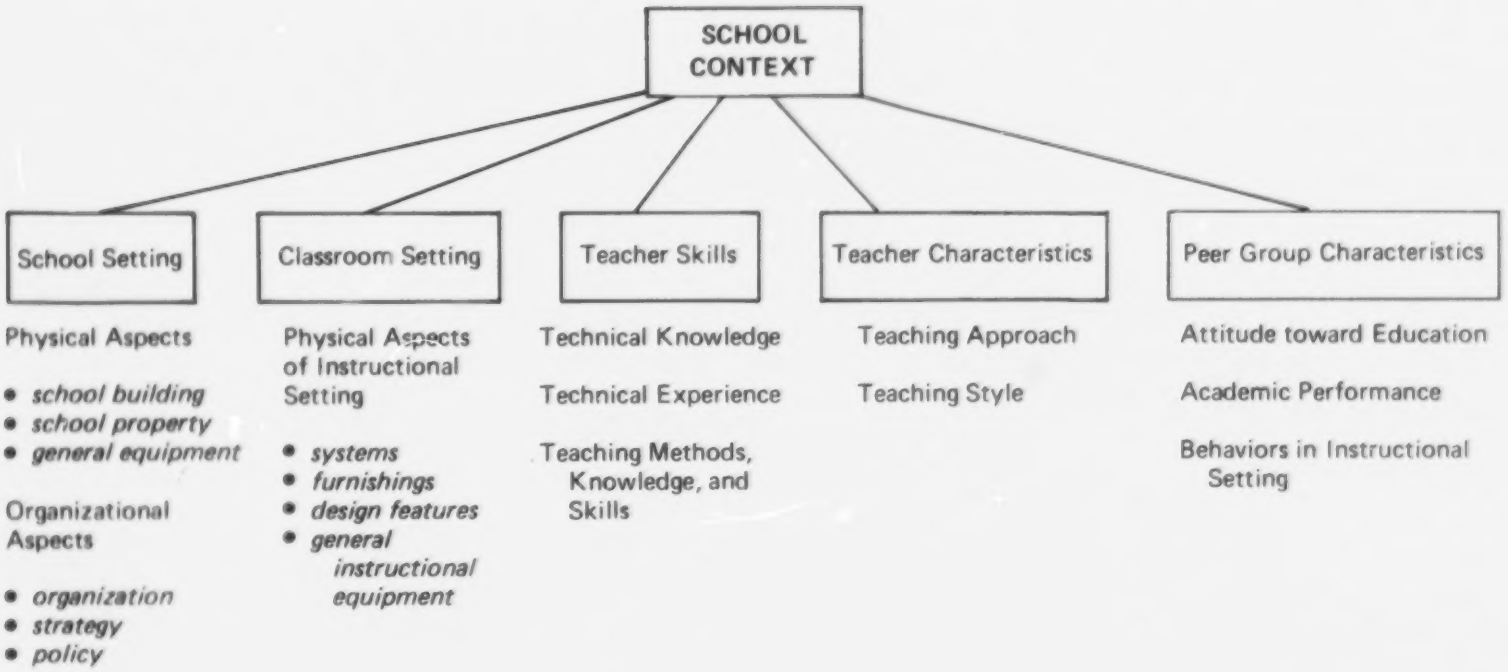

Figure 2. Elements of quality of school context

A lathe is considered program-specific equipment and would not be included here.

Elements within the organizational aspect of school setting include formal organizational structure, strategies, and policies. Organizational structure relates to the formal organizational chart and related management philosophy.* It plays a major role in defining school setting since it directly affects personnel networks and information flow. For instance, one school unit might have a rigid, hierarchical organization chart with an autocratic management approach, a top-down flow of information, and a principal who is primarily concerned with management. A second school might also have a hierarchical structure but one that is defined by a participative management style (e.g., collegiality at the community college level), an interactive communication network, and an administrator who is primarily concerned with instruction.

Strategies relate to long-range goals and directions of the school as a unit. Research indicates that schools with clearly stated mission statements are more effective (AASA 1983). The basic strategic alternative of growth vs. no-growth is an example of a strategic direction that would affect school setting. An example of a strategic goal would be minimization of capital expenditures for equipment through development of and emphasis on a strong industry donation program. This goal could potentially affect the activities and responsibilities of administrators, instructors, and students and would therefore need to be considered in a description of school setting.

Organizational policy is the final element within the organizational aspects of school setting. Policy affects the daily operation of the organizaton. Dress code is one example of a policy decision. Or, consider a 2-year college policy regarding credit for nontraditional learning experiences

Thorough consideration of the physical and organizational aspects of school setting should result in a comprehensive description of the subelements of quality within that domain. Only then can judgments be made of adequacy, appropriateness, and effectiveness and indicators of quality be developed.

Classroom Setting

Classroom setting is the second component of school context. It is much narrower in focus than school setting. Classroom setting deals with physical aspects of the classroom as they relate to general instruction. Classroom setting deals with the overall physical comfort, safety, and adequacy of the general instructional setting (Westbrook 1982). Aspects to be considered would include adequacy of safety equipment; adequacy of lighting, ventitation and heating; adequacy of desks and work areas; and availability of basic teaching equipment such as blackboards, pointers, flip charts, and more technologically advanced teaching equipment such as videotapes, computers, closed circuit TVs, and so forth. Classroom setting is of particular importance in a vocational education setting. For example, in a course such as a welding lab where open flames are necessary, ventilation and traffic flow patterns are of extreme importance. Availability and adequacy of safety equipment and procedures are also critical. Elements of classroom setting are important to general instructional settings too. Most of us know what is it like to take a test in a cold, poorly lit classroom so we can understand why classroom setting has an effect on the overall educational experience. The underlying premise is that certain standards should be met in order to enhance learning and increase the probability of meeting course objectives.

Teacher Skills

The third component of school context is teacher skills. Three basic elements of quality are included in our definition of teacher skills. First is technical experience—How much direct work experience do teachers

*Administrator skills and characteristics are subsumed within the elements of the organizational aspect of school setting

have in the fields in which they are teaching? Second is teaching methods, knowledge, and skills—Has the teacher completed postsecondary course work in history of education, teaching methods, approaches, and techniques? Does the teacher apply this knowledge to the classroom setting? Does the teacher present subject matter in a form or manner that makes it more meaningful and significant to the learner (National Commission on Secondary Vocational Education 1984)? Third is technical knowledge—Is the teacher technologically up-to-date (National Research Council 1983)? Has the teacher continued formal course work related to the teaching field? Does the teacher have recent field experience? These are the elements to be considered and some general questions addressed when assessing the teacher skills component of school context.

Teacher Characteristics

The fourth component of school context is teacher characteristics, defined by two quality-related elements: teaching approach and teaching style. Teacher characteristics is a much "softer" component than teacher skills, but it is no less important in terms of its effect on the educational experience.

Teaching approach is related to teaching philosophy and is manifested as attitude toward the teaching-learning process as demonstrated through daily behavior both in and out of the classroom. Is learning a one-way process with the teacher dispensing information and the student absorbing information, or is the student-teacher feedback loop a critical element of process? Is learning to be dreaded or enjoyed? Does learning have a definite start and finish or is it a lifelong process? Are the teacher and student on the same team or opposing teams? The answers to these types of questions help to define teaching approach.

Teaching style is the result of a number of factors. Attitude toward job, attitude toward students, subject and content area, and individual personality all affect teaching style. Teaching style is expressed through teacher classroom behavior. Is the teacher enthusiastic and innovative? Is humor incorporated, as appropriate, into the teaching process? Does the teacher show empathy with students? Is the teacher concerned with individual students? The teacher behaviors that provide the answers to these and similar types of questions constitute teaching style.

In summary, the teacher characteristics category is the combination of a range of variables falling within the elements of style and approach. There is undoubtedly a range of effective teaching styles and approaches. However, in order to develop indicators of quality teacher characteristics, the assumption must be made that there are identifiable characteristics that are common to effective styles and approaches. Most of us have memories of specific teachers whose styles and approaches were either particularly effective or ineffective. One can therefore easily understand why teacher characteristics play an important part of the overall learning experience.

Peer Group Characteristics

The fifth and final component of school context is peer group characteristics. This can generally be defined as the attitude toward education, academic performance, and behavior of the student body as a whole or of a homogeneous group within the student body. For example, secondary education could be synonymous with college preparatory education for one student body. Another student group may view high school as a setting for courtship and socialization, a third may view secondary education as a stepping stone to the world of work, or a fourth group might view it as a setting for organized amateur athletic competition. This aggregate view pervades the group and typically affects students' behavior and performance at the individual level. Peer pressure plays a significant part in the formulation and maintenance of peer group characteristics.

Consider the following example. A homogenous group of very bright students decides that "grades" are meaningless symbols. They claim that course content is not challenging and "anyone can get an A." Therefore, grades do not differentiate the bright students from the marginal students. This peer group holds the learning process and school programs in very low esteem. They decide to express this attitude through poor attendance records, nonparticipatory behavior in the classroom, and failing grades in all their courses. In doing so, they are making a group statement about the educational experience that affects group members' academic performance and behavior at the individual level.

Thus, peer group characteristics may significantly affect the student-learning interface and can be perpetuated or modified through peer pressure systems. An understanding of peer group characteristics is prerequisite to a comprehensive definition of school context.

School context "sets the stage" for school process, which will provide the "action." Context relates to the quality of the physical and organizational setting through the *school setting* and *classroom setting* components and provides characterization of the main actors through the components of *teacher skills*, *teacher characteristics*, *peer group characteristics*, and *school setting* since it includes administrative skills and characteristics.

Elements of School Process

School process is the remaining portion of our conceptualization of elements of quality in the educational experience. The *teaching-learning process* and *patterns of participation* are its major subdivisions. Components and elements were identified and defined as part of the model formulation process described in chapter 1. The results of that effort as they relate to school process follow.

Teaching-Learning Process

The teaching-learning process includes two components related to quality: *teacher, student, and material interaction* and *instructional content and equipment*. These components are represented as cells three and four of the central panel in our conceptual framework (figure 1) and are further detailed in figure 3.

Instructional content and equipment. Instructional content and equipment deals with course-specific information and equipment. Even though there is a wide range of course offerings within any given school unit, there are certain common elements related to quality of content and equipment that should be considered regardless of the course. These elements include but are not limited to the following:

- Clear course objectives (Westbrook 1982)
- Business- and industry-related course content (National Research Council 1983; Benson 1982)
- Instructional content related to course objectives (Westbrook 1982; Miller 1984)
- Course objectives consistent with program goals (Westbrook 1982; Miller 1984)
- Appropriate equipment available
- Utilization of multiple media for instruction
- Balance between materials requiring content knowledge, understanding, and application (Benson 1982)
- Balance between knowledge, skill, and attitude development (National Research Council 1983)

These elements and others like them serve as a starting point for the development of indicators of quality content and equipment. The underlying premise is that certain standards indicative of quality can be identified for each element.

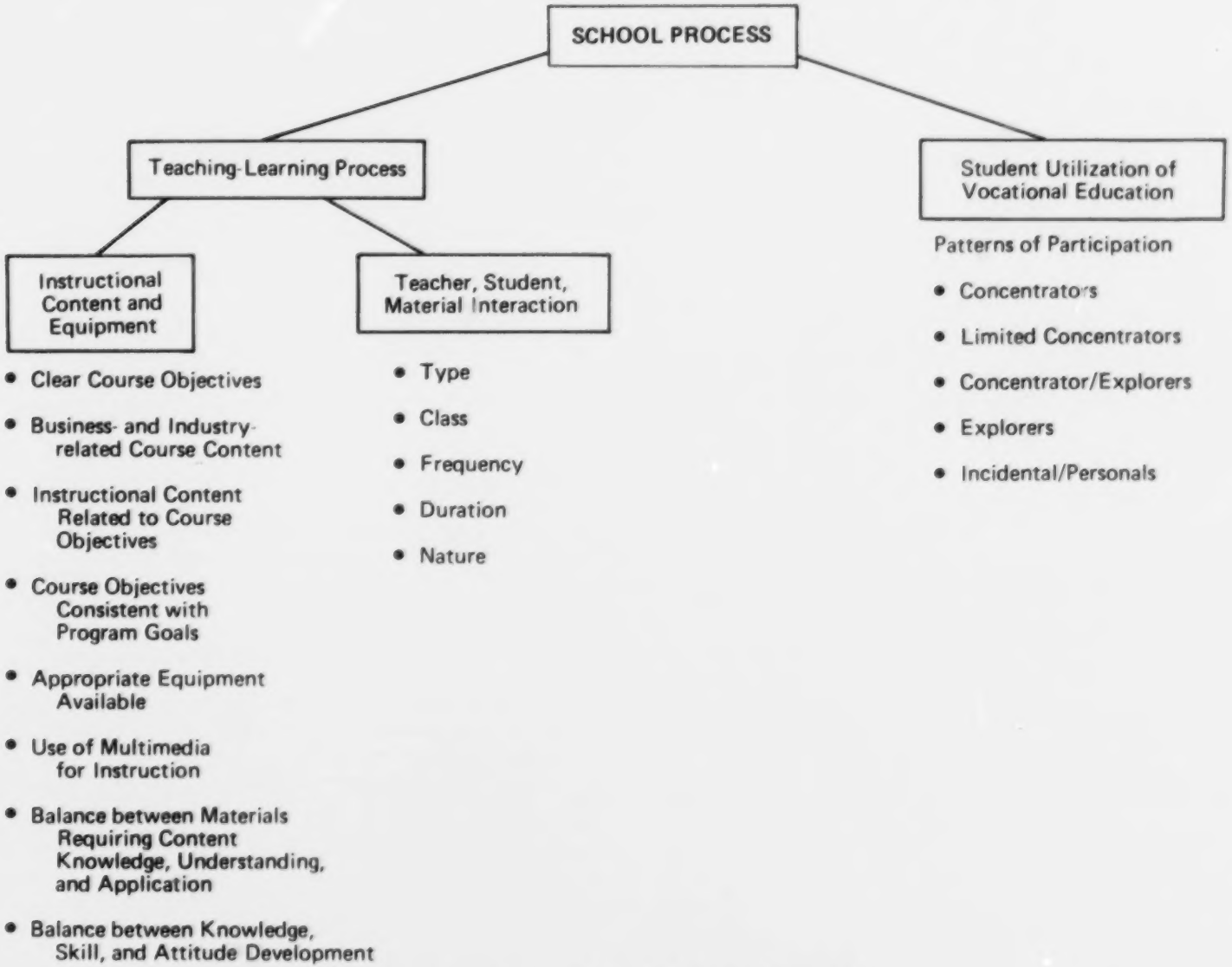

Figure 3. Elements of quality of school process

Teacher, student, material interaction. The second component of the teaching/learning process is labeled *teacher, student, material interaction*. This component can generally be described in terms of five descriptive elements: type, class, frequency, duration, and nature.

- Type refers to the specific, interactive combination (e.g., student with student, student with teacher, etc.).
- Class refers to the basic classification of the interaction. Examples include—
  - —teacher monitors student,
  - —teacher questions student,
  - —teacher reinforces student,
  - —student reads material,
  - —student handles equipment,
  - —student questions teacher.
- Frequency involves an actual count of interactions by type or class. For instance, the number of student-with-teacher interactions occurring within a class period might be noted.
- Duration involves a time measure of the length of each interaction. This is usually recorded by type of interaction (e.g., How long did the student with student interface last?).
- Nature involves a general assessment of the quality of the interface, such as positive, neutral, or negative.

A considerable number of references aided in the development of this classification scheme. For example, Halasz, Behm, and Fisch (1984), Miller (1984), and Westbrook (1982) suggested an increase of "time on task" in effective programs. This would involve development of indicators that include type, class, and duration elements. Hunt and Woods (1979) recommended frequent positive reinforcement of student by teacher that would include the elements of type, class, and nature. Westbrook (1982) and Miller (1984) suggested that teachers should monitor student performance and provide qualitative feedback. This sort of interaction would be described by a combination of all five elements in our scheme. Therefore, references helped to identify elements related to quality of the *teacher, student, material interaction* component.

Thus, a description of *student, teacher, and material interaction* in the classroom would include a statement of type, class, frequency, duration, and nature. Development of indicators of quality for these interactions would then be made in consideration of *instructional content and equipment*. For instance, it may be determined that a lab setting requires a greater frequency and duration of *student-with-student* interaction than does a lecture class. Or, there may be a higher need for teachers to monitor individual students in a lab setting than in a classroom setting.

Therefore, a comprehensive analysis of the quality of the *teaching-learning process* component would include references to both *instructional content and equipment* and *teacher, student, material interaction*. This process provides much of the "action" in the school unit and is clearly a major part of the overall quality of the educational experience.

Student utilization of instructional process. The balance of school process deals with the formal relationship between the student and the vocational education school unit or program. Campbell et al. (1982) identified this interface as *patterns of participation*; it has been incorporated into our model as a component of school process (figure 3), but it is also accurately described as an intermediate outcome of the interaction between school context and school process (figure 1).

Campbell conceptualized a five-dimensional matrix for describing possible patterns of participation. The dimensions of the matrix were intensity, diversity, continuity, supportive diversity, and proximity.

Five patterns were hypothesized and empirically verified. These patterns were identified by Campbell, Gardner, and Seitz (1982) as follows:

- Concentrators
- Limited Concentrators
- Concentrator/Explorers
- Explorers
- Incidental/Personals

Briefly, the descriptive concepts include: (1) the number of credits received in vocational courses in the program area of specialization; (2) the number of program areas in which the specialty was pursued; (3) the number of vocational credits in the program area that were determined to be supportive of the specialty area; (4) a scaled measure of whether the specialty was pursued in the 11th or 12th grade; and (5) the number of years in which the specialty was taken. A student's area of specialization was defined as a program area (for example, distributive education, home economics) in which at least six-tenths of the total number of vocational credits were received.

For example, Concentrators take an average of 6 vocational credits over a 3-year period. Limited Concentrators generally take about half the number of vocational credits that Concentrators take, usually within a 2-year period. Concentrator/Explorer is similar to the Limited Concentrator pattern, except that the vocational course work is usually completed early in the high school years. Students classified in the Explorer patterns pursue courses in three or more program areas but do not achieve any level of specialization. In comparison, Incidental/Personal students average less than a full credit and generally complete the work in a semester. These patterns were used in the analyses in place of the traditional curriculum descriptors of vocational, general, and college preparatory. (p. 16)

Although detailed discussion of these patterns goes beyond the scope of this report, it is important to be aware that the extent and kind of participation in vocational education is critical to a comprehensive evaluation of quality of the educational experience. Patterns of participation seem to be influenced by a number of aspects of the educational experience, such as program structure, use of facilities and equipment, assignments of students, course objectives, and elements of teacher, student, and material interface. In other words, patterns of participation are interrelated with the teaching-learning process and school context and may therefore be described as an intermediate outcome of their interaction.

Our conceptualization of elements of quality in the educational experience provides a framework for developing indicators of quality. The model may not be comprehensive, but a continuation of the process by which it was developed should lead to a complete definition of the concept. A general discussion regarding development of indicators of quality will be presented in chapter 4.

CHAPTER 4

ASSESSING QUALITY OF VOCATIONAL EDUCATION

Introduction

It is no longer sufficient to say Johnny can read. One must also state how well he can read, why he can read, and what can be done to improve Johnny's reading ability. Consequently, evaluation has become a major activity within the field of education today. The individual, Federal, State, and local agencies and society as a whole have concerns about the quality of educational processes, structures, and outcomes. Therefore, educators are being asked to assess a complex educational system by means of a complex evaluation system that is quite a complex undertaking in itself.

Evaluation is a major area of emphasis in the Carl D. Perkins Vocational Education Act of 1984. In addition to the requirement for placement and employment data for programs assisted under the act, each State is required to evaluate program effectiveness and "quality and availability of instructional offerings." Consequently, within vocational education today, the evaluation of quality is emphasized through its ties to legislation and funding.

Chapter 4 presents some general, yet important, issues and guidelines related to assessing quality of vocational education. It is not intended to be a comprehensive review of program evaluation techniques, models, and methods; the literature on the topic is voluminous and could only be superficially treated within the scope of this writing. Rather, general evaluation approaches, specific models, and so forth are discussed as they relate to developing indicators for the elements of quality vocational education that were discussed in chapters 2 and 3.

What Is Quality?

Chapters 1, 2, and 3 presented within a systems framework the components and elements that affect quality of vocational education. These components and elements are generalizable across school units and programs. But the specific indicators of quality associated with them may vary with school unit and program and are likely to change over time. This is because specific definitions of what indicates quality are relative, judgmental, and subject to change as the scope of the individual provider responsibility changes.

The definition of quality education is strongly influenced by conceptual approaches operant within the field at a particular point in time. Therefore, the definition of "good" depends on present knowledge and opinion. For example, in the early 1970s, the "open" classroom approach was adopted by many educators. Programs were modified and facilities were tailored to this new approach with the underlying assumption that the "open" classroom was positively related to "quality" education.

Consequently, although the components and elements of school context, school process, and particularly the educational outcomes remained intact, specific standards of quality related to those components probably changed. Consider, for example, *classroom setting*. One indicator of a quality classroom setting prior to the open classroom approach might have been this:

- A closed, well-sound-proofed instructional setting allowing X square feet per student and one desk per student.

For those schools that subsequently accepted the open classroom concept the parallel indicator would probably have been this:

- An open instructional setting with *no* structural barriers between four independent classes and 'work tables' designed for simultaneous use by four to six students (no individual desks for students or teachers).

Of course, this is just one example of how a specific indicator of quality might change as approaches within the field change. In actuality, the open classroom approach undoubtedly affected indicators associated with most of the elements of the school context and school process portion of our framework.

The definition of quality also changes as scope of provider responsibility changes. Consider the growing demand for and role of day-care services today. Many children from the time they are infants are placed with day-care providers for 45 hours per week. These providers spend considerably more waking hours with these children than do their parents. The scope of the providers' role has potentially expanded from one of basic care provider to that of primary role model. The overall societal and individual assessment of the importance or substance of child raising has not changed. However, the definition of day-care has expanded and the indicators of quality day-care should theoretically reflect this change. Specific indicators of quality are expected to change even though the basic conceptual framework for elements of quality education will remain the same.

Consequently, the nature of quality makes assessment difficult but not impossible. The difficulty in no way reduces the necessity. Popham and Grasso (cited in Grasso 1979) have stated that assessing the worth or merit of educational phenomena is an essential component of systematic educational evaluation. In addition, section 112 (b)(1)(B) of the 1976 Amendments to the Vocational Education Act of 1963 as interpreted by Federal regulations explicitly states the need for evaluating "quality and availability of instructional offerings" (*Federal Register*, 3 October 1977; section 104.402). Thus, the assessment of quality in vocational education is not only generally recognized and accepted as important, but it is mandated by law.

Approaches to Assessing Quality

Considerable effort has been expended in developing evaluative strategies to facilitate the assessment of quality. Much of this work has been drawn from the areas of organizational behavior and systems theory and adapted to specific field evaluation models. Three predominant approaches have emerged that are relevant to assessments of quality within the field of vocational education. We will generally refer to them as structural, process, and outcome approaches.

Structural Approaches

Structural approaches focus on aspects of the organization that impact on quality of education. This would include such variables as personnel, facilities, equipment, formal organizational structure, policies, and so forth. These variables primarily relate to components and elements of quality within the school context domain of our model (figures 1 and 2). For example, in a structural approach to the issue of human resource development, a judgment might be made that certain teacher qualifications are necessary to ensure quality education. These qualifications would be expressed as indicators within perhaps the *teacher skills* and *teacher characteristics* components of school context. Or, in terms of *classroom setting*, indicators might be developed that specify teacher-student ratios and student-square feet ratios, and so forth. These would serve as standards of quality for instructional setting.

Two major assumptions support a structural approach to assessing quality. First, it is possible to identify "good" in terms of staff, physical facilities, formal organization, and so forth. And second, the quality of education will improve as a result of such things as better qualified staff, improved physical facilities and equipment, and sounder organizational structure.

Process Approaches

Process approaches utilize criteria-oriented methods and individual studies to examine activities involving teachers, students, materials and their interaction, and other elements that are included within our definition of school process. Therefore, process approaches would primarily focus on the school process portion of our model (figure 3). A process approach might examine such things as "hands-on" equipment time in a welding class, frequency of "teacher questioning student" during a lecture class, or clarity of course objectives against selected indicators of quality.

Process approaches to the assessment of quality assume that it is possible—

1. to set intermediate course of program goals and evaluate whether goals have been met,

OR

2. to establish quantitative and qualitative standards of quality, based on expert opinion and applied to individual case review,

OR

3. to directly observe critical behaviors that permit determination of quality,

AND

4. for school educators and administrators to agree upon what constitutes quality without continually monitoring educational outcome.

Process evaluations can be utilized to detect problems in program design and implementation, to provide information for formative decision making, and to develop databases for long-range planning (Stufflebeam et al. cited in Grasso 1979).

Outcome Approaches

Outcome approaches to assessing quality of education assume that certain direct measures of results are related to quality of education. Theoretically, within a pure outcome framework, the qualifications of educators, the structure of the organization, facilities and equipment, and school process components and their interactions can be disregarded in favor of assessing whether or not desired results are achieved. One example of an outcome approach is Scriven's conceptualization of payoff evaluation that appears to include analyses of both outcome and impact (cited in Grasso 1979).

The underlying assumptions of an outcome approach are the following:

1. There is a high level of agreement between societal, individual, and professional estimations as to what end results are desirable.

2. Desired outcomes can be expressed as quantitative and qualitative indices of success.

3. Desired outcomes are brought about to a great extent by quality education.

4. There is a high level of agreement between experts and practitioners regarding validity of selected outcome indicators.

An outcome approach would focus primarily on the elements of quality vocational education outcomes depicted in the right-hand panel of our model (figure 1). Outcome indicators or sets of outcome indicators would be developed for each component in this outcome panel and a determination of attainment or lack of attainment would

subsequently be made. In some cases, the assessment could be immediate; in others, there may be a considerable time lag. For example, reading ability might be assessed by means of a reading achievement test battery just prior to graduation. In some professions, licensing exams are taken shortly after graduation and serve as indicators of attainment of job-specific skills. But in the case of positive interpersonal interactions, a considerable period of time on the job may be required prior to assessment and the method of measurement may not be so readily available.

A major difficulty with a pure outcome approach is that it requires no systematic linkage between desired outcomes and components and elements of the educational experience. Program modifications resulting from a pure outcome approach may not be systematic. The problem is due to the limited scope of the analysis. The same problem exists for pure structural and process approaches.

An evaluation system designed to assess quality of vocational education as defined by our conceptual framework must consider school context, school process, and outcomes and therefore requires a synthesis of these approaches. An integrated approach to the evaluation of quality assumes that appropriate structure (school context) increases the probability of quality programs (school process), which, in turn, increases the likelihood of successful outcome.

The CIPP (Context, Input, Process, Product) model designed for institutional decision making (Stufflebeam et al. cited in Grasso 1979) is one example of a integrated evaluation approach that could be applied to the assessment of quality. Another would be Drewes' expansion of the CIPP model to include impact evaluation (Drewes et al. 1975). Drewes' comprehensive model incorporates structural, process, and outcome approaches within the following evaluation methodologies:

- **Context evaluation**—identifies unmet needs and unused opportunities
- **Input evaluation**—identifies and assesses merits of various structural variables such as staff, organization, and physical facilities
- **Process evaluation**—reviews operations of programs and the teaching-learning process as a whole
- **Product evaluation**—measures and interprets attainments at end of courses and programs to assess intermediate goal attainment
- **Impact evaluation**—examines intended and unintended results of vocational education, such as employee satisfaction and post-program placement
- **Pairwise evaluation**—examines pairwise interrelationships of evaluation types listed previously

The primary point is that a comprehensive and systematic evaluation of the elements of vocational education quality requires a system of evaluation that includes structural, process, and outcome approaches.

Developing Indicators of Quality

Indicators are standards against which something, in this case, quality, can be measured. In order to assess quality of vocational education comprehensively, sets of indicators need to be developed for the elements of quality presented in chapter 2 (outcomes) and chapter 3 (educational experience) and incorporated into an evaluation system such as Drewes' model. Assessing quality within these constraints imposes formidable difficulties in terms of time and cost. It is not practical to tabulate exhaustively all of the indicators related to the elements of our model, nor is it financially practical to

support an evaluation system capable of collecting and analyzing such data in a complete form.

Our approach to this difficulty involves two initial steps:

1. Prepare a representative list of subelements. These should be selected to encompass the range of each major component and element combination of our model as described in chapters 2 and 3.

2. Secure a consensual judgment about the relative priority of time or resource investment in the subelements. These priorities might serve as proxies for the overall value of the subelements. (Allow the essentiality of specific subelements to influence this priority. Some may be essential as preconditions or in their own right; others may be alternatives.) This exercise will also provide the opportunity to suggest new subelements or to eliminate inappropriate ones.

These steps should lead to the prioritization of elements within our framework. This ordering may vary from school unit to school unit and within school units over time. But after these two steps are reasonably complete, it will be possible to develop a set of indicators for at least the high-priority subelements within the outcome and educational experience portions of our model.

A set of underlying assumptions is needed to support the development of quality indicators. The following assumptions have been extrapolated from Zusman and Lawson's (cited in Riedel et al. 1974) work related to assessing the quality of mental health patient care:

- Indicators of "quality" education can be characterized and rated.

- Definition of quality education as expressed through indicators depends on present knowledge and opinion.

- Definition of quality education as expressed through indicators changes as scope-of-provider responsibility changes.

- Decisions regarding adequacy of particular educational structures and appropriateness of particular processes and programs are influenced by decision makers' value systems and judgments and are therefore ultimately subjective.

These assumptions take into account the relative, judgmental, and changing nature of definitions of quality as expressed at the indicator level. For the purposes of the ensuing discussion, these assumptions will be considered valid.

Normative versus Empirical

Both normative and empirical approaches should be drawn upon for developing indicators. Normative indicators would be formulated on the basis of an ideal of what represents excellence. Methods used to develop normative criteria include judgments of experts or highly qualified panels and state-of-the-art literature and research. Normative standards are based more on a body of knowledge than actual practice. One problem with a purely normative approach is that practitioners and educators feel that it is not practical from a time, cost, and other perspective to apply idealized standards to actual practice. Empirical standards, on the other hand, are based on actual practice—educational programs and courses. A major criticism of purely empirical approaches is that standards may appear adequate relative to other situations (school units, programs, courses) yet fall far short of what is achievable through application of current knowledge. A blend of the normative with the empirical is the recommended approach to developing indicators of quality. Empirical observation should provide a baseline that is

then modified by normative judgment; school units and programs should not lose sight of the ideal.

Quantitative versus Qualitative

There exists a long-standing debate concerning the advantages of qualitative versus quantitative methods of evaluation. However, a growing body of evaluation researchers holds that the two methods can be utilized quite profitably together. Each method has its biases, so selection of the method should be based on purpose of the evaluation and specific constraints connnected with the project.

There are a number of reasons why a combination of qualitative and quantitative methods is suited to a comprehensive evaluation of quality. First, a comprehensive evaluation requires analyses of quality of structural, process, and outcome elements. This variety of analyses typically requires a variety of methods. Second, when used together for the same purpose, the two-method-type indicators can support one another and often lead to insights that neither one could provide independently. And third, utilizing a combination of qualitative and quantitative methods helps to account for the biases that are associated with each approach (Cook and Reichart 1979). Evaluators need to fit the method and the indicators to the demands and purposes of the particular evaluation; restricting oneself to only one of the method types will probably restrict a comprehensive evaluation of quality.

Examples of Indicators

As previously noted, specific indicators of quality are typically not generalizable across school units or even school programs, so it is not practically possible to tabulate all potential indicators of the elements of quality in our model exhaustively. Therefore, just a few examples will be mentioned in order to clarify the relationship between indicators and model components and elements and to demonstrate the level of specificity involved at the indicator level. These examples are shown in figure 4.

Of course, these are only a few examples of indicators that might be associated with components and elements of quality vocational education. The key point is that indicators must be measurable or observable and considered as good proxies for the context, process, or outcome elements that they are intended to measure. It is realized that considerable effort is involved in developing indicators of quality. However, if the problem is attacked in a systematic and phased manner, it is possible for individual school units and programs to establish some valuable indicators of quality.

Summary

The elements of quality prcposed in this paper have been derived from a diverse body of literature and experience. We have attempted to incorporate various findings related to attributes of quality education and programs into a general yet comprehensive conceptual framework in order to broaden our understanding of the elements of quality vocational education. We hope it will contribute to an increased awareness of the major components influencing the quality of education. This report is intended to inform policymakers of the breadth of the elements of quality and to suggest an integrated framework for assessing quality to policymakers and vocational education evaluation theoreticians.

For purposes of this inquiry, vocational education was defined as school-related activities that occur in secondary schools and 1-and 2-year programs in postsecondary schools; vocational education was considered to be a subset of general, formal education, which in turn is a subset of education coming from a variety of life experiences.

COMPONENT	ELEMENTS	INDICATOR
Teacher Skills	• Technical Knowledge	• Credentials, licenses
	• Technical Experience	• Teacher must have minimum of 3 years of full-time work experience in field prior to hire
		• Teacher must accumulate X number of hours of field experience through co-op program or summer employment for each 5-year teaching period
	• Teaching Methods	• Prior to hire, teacher must have 20 quarter hours in teaching methods and 10 quarter hours in history-of-education course work from an accredited college
		• Teacher must take minimum of 4 quarter hours in teaching methods course work from an accredited college for each 5 years of teaching
Competency Development	• Job-specific Skills	• Program graduate receives a passing grade on licensing exam
Student Utilization of Instructional Process	• Patterns of Participation	• A minimum of 65% of vocational program graduates are classified as Concentrators and Limited Concentrators
Basic Skills	• Reading	• Program graduate score ranks above 50% percentile on standardized reading comprehension test
Teacher, Student, and Material Interaction	• Student, Material	• Over a period of 4 lecture classes, student should spend no more than 25% of class time reading material in class
		• In metal-working lab, 2-person student teams should be working together between 40% and 60% of class time

Figure 4. Examples of quality indicators

Our framework for the elements of quality grew out of a multiphased process that included reviews of related literature, expert input, and key informant interviews. The literature provided preliminary structure to the framework which was further refined and defined by expert opinion and key informant commentaries.

Some vocational education has been directed by law to be evaluated in terms that include job placement in training-related employment, employer satisfaction, and quality and availability of instructional offerings. This project, however, initially explored a variety of desirable outcomes that may help to define high quality vocational education programs and subsequently identified the components of the educational environment that may support attainment of those outcomes. The outcomes were therefore considered as goals and the structures and processes within the educational environment were perceived as means for achieving the goals. The resulting framework for the elements of vocational education quality (figure 1) was conceptualized as a complex environment converging on the educational experience, driven by desired individual and societal outcomes, and influenced by environmental inputs such as community setting and labor market conditions.

The Framework: Elements of Quality Vocational Education

Elements of Quality Outcome

Two general types of outcomes are included in our framework: individual and societal with a subset of societal outcomes specific to employers. Four elements of quality relating to individual outcomes were identified and defined. *Competency development* encompasses the development of work-related skills (both occupational and job specific), basic skills such as verbal and mathematical, and general problem-solving ability. *Positive interpersonal interaction* involves the ability of people to have positive and mutually supportive relations with others in the home, the workplace, and the community. A *sense of efficacy* is an attitude of confidence in one's ability to utilize skills to achieve goals. The ability to manage a large array of tasks without having to depend upon someone else is designated as a *sense of independence*. These are the four general elements of quality individual outcomes included within our conceptual framework.

Social stability and *employer needs* are the primary elements of quality within the societal outcome portion of our framework. Social stability does not imply social stagnation; rather, it means gradual, orderly change. *Provision of essential services, quality of work products, resources for self-support,* and *societal improvement* are the subelements that support social stability.

We also examined a subset of societal outcomes specific to employers. To be worth the investment from the employer's point of view, vocational education should contribute to *available skills, reduced training time,* and *high productivity*. These are the three elements of quality related to employers needs. Our definition of quality vocational education outcomes includes, but is not limited to, employment-related skills. Rather, vocational education of a positive quality must also enhance the development of desirable or even essential skills or dispositions that are not directly employment related.

Elements of Quality within the Educational Experience

Taking a systems perspective, the processes and structures that define the elements of quality within the vocational education experience should relate to intended individual and societal outcomes. Our model divides the educational experience into two domains, *school context* and *school process*. School context deals with both physical and organizational aspects of the school unit. Personnel, facilities, equipment, policies, and

formal organizational structure all fall within school context. The elements of quality within school context that are formally included in our model are *school setting*, *classroom setting*, *teacher skills*, *teacher characteristics*, and *peer group characteristics*. Figuratively speaking, school context provides the setting for school process, which provides the "action." Estimations of quality of school process would consider such things as course content; course-specific equipment; interaction between teacher, student, and materials; and level of formal student involvement in the vocational education program. The elements of quality formally included within school process are *teacher, student, and material interaction*; *instructional content and material*; and *student utilization of instructional process*.

These elements of quality within the educational experience should relate to intermediate objectives that, in turn, should support attainment of desired outcomes; the linkage should be systematic between quality of experience and quality of outcome in order to maintain and replicate effective programs and make modifications as necessary.

Assessing the Quality of Vocational Education

The elements of quality within our framework are generalizable across school unit and program. However, the specific indicators of quality associated with them may vary across school and program and are likely to vary over time.

Considerable effort has been expended in developing evaluative strategies to facilitate the assessment of quality. Evaluation models should combine structural, process, and outcome approaches in order to assess the range of elements of quality within our framework.

Specific indicators of quality need to be developed at the individual school unit level. It is not practically possible to tabulate exhaustively all the indicators related to the elements of our model, nor is it financially practical to support an evaluation system capable of gathering and analyzing such data in a complete form. A process for identifying and prioritizing subelements within the model is suggested as a practical starting point for developing indicators. A combination of quantitative and qualitative methods is suited to a comprehensive evaluation of quality, and both normative and empirical approaches should be drawn upon for developing indicators.

In summary, this discussion presents a justification and set of procedures that will permit an integrated consideration of the elements of vocational education quality. We have advocated considering a broad set of elements of quality rather than a narrowly defined or segregated set, so that the evaluation of vocational education reflects its contribution to a set of living experiences in addition to employment.

REFERENCES

Abramson, Lyn Y.; Seligman, Martin E. P.; Teasdale, John D. "Learned Helplessness in Humans: Critique and Reformulation." *Journal of Abnormal Psychology* 87, no. 1 (1978): 49-74.

American Association of School Administrators, *The Role of the Principal in Effective Schools: Problems & Solutions*. The AASA Critical Issues Series. Sacramento, CA: Education News Service, 1983.

Benson, Charles. "The Question of Quality." *VocEd* 57, no. 6. (September 1982): 27-29, 55.

Blauner, Robert. *Alienation and Freedom*. Chicago: The University of Chicago Press, 1964.

Bowles, Samuel, and Gintis, Herbert. *Schooling in Capitalist America*. New York: Basic Books, 1976.

Campbell, Paul B.; Gardner, John A.; and Seitz, Patricia. *Postsecondary Experiences of Students with Varying Participation in Secondary Vocational Education*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Campbell, Paul B.; Mertens, Donna M.; Seitz, Patricia; and Cox, Sterling. *Job Satisfaction: Antecedents and Associations*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Cook, Thomas D., and Reichart, Charles, S., eds. *Qualitative and Quantitative Methods in Evaluation Research*. Beverly Hills, CA: Sage Publications, 1979.

Dewey, John. *Democracy and Education: An Introduction to the Philosophy of Education*. New York: Macmillan Company, 1916.

Drewes, D. W.; Nerden, J. T.; Lawrence, J. E. C.; and Oglesby, E. H. *Questions in Vocational Education* Career and Vocational Education Professional Development Report No. 18. Raleigh: North Carolina State University, 1975.

Federal Register. (3 October 1977): Section 104.402.

Frankena, William K. "A Model for Analyzing a Philosophy of Education." In *Toward a Philosophic Perspective*, edited by Joe Park, pp. 139-144. New York: Macmillan Publishing Co., 1974.

Gardner, John W. *Excellence*. New York: Harper and Row, 1961.

Grasso, John T. *Impact Evaluation in Vocational Education: The State of the Art*. Columbus: The National Center for Research in Vocational Education, The Ohio State 1979.

Halasz, I. M.; Behm, K. S.; and Fisch, M. R. *Influences on Secondary and Postsecondary Vocational-Technical Student Time on Task*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

Hills, Stephen M., and Crowley, Joan E. "The Quality of Youth Employment." In *Pathways to the Future*, Vol. 3, edited by Michael E. Borus, pp. 1-24. Columbus: Center for Human Resource Research, The Ohio State University, 1983.

Hunt, Neen, and Woods, Jerry. *Interrupted Education: Students Who Drop Out*. Brooklyn: Office of Education, New York City, 1979.

Katzell, Raymond A. "Changing Attitudes toward Work." In *Work in America the Decade Ahead*, edited by Clark Kerr and Jerome M. Rosow, pp. 35-57. New York: Van Nostrand Reinhold Company, 1979.

Kelly, Harold H. "Attribution Theory in Social Psychology." In *Nebraska Symposium on Motivation*, Vol. 15, edited by D. Levine. Lincoln: University of Nebraska Press, 1967.

McKinney, F.; Franchak, S. J.; Halasz-Salster, I.; Morrison, I.; and McElwain, D. *Factors Relating to the Job Placement of Former Secondary Vocational Education Students*. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1981. (ERIC Document Reproduction)

Miller, Juliet "Effective Schools Research and Vocational Education." ERIC Digest, no. 31. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984.

National Commission on Secondary Vocational Education. *The Unfinished Agenda: The Role of Vocational Education in the High School*. Columbus. The National Center for Research in Vocational Education, The Ohio State University, 1984.

National Research Council, Commission on Behavioral and Social Sciences and Education. *Education for Tomorrow's Jobs*. Washington DC: National Academy Press, 1983.

Riedel, Donald D. C.; Tischler, Gary L.; and Myers, Jerome K., eds. *Patient Care Evaluation in Mental Health Programs. Cambridge, MA: Ballinger Publishing Company, 1974.*

Sternberg, Robert J. "What Should Intelligence Tests Test? Implications of a Triarchic Theory of Intelligence for Intelligence Testing." Educational Researcher 13, no. 1 (January 1984): 5-15.

Taylor, Charles. "Neutrality in Political Science." In *Social Structure and Political Theory*, edited by William E. Connolly and Glen Gordan. Lexington, MA: D. C. Heath and Co., 1974.

Taylor, Shelley E. "Adjustment to Threatening Events: A Theory of Cognative Adaption." *American Psychologist* 38, no. 11 (November 1983): 1161-1173

Tennyson, W. W.; Hansen, L. S.; Klaurens, M. K.; and Amtholz, M. B. *Career Development Education: A Program Approach for Teachers and Counselors*. Alexandria, VA: National Vocational Guidance Association, 1980.

Thimmesh, Hilary, O.S.B. "Education Is about Civilization: Lose Sight of That and You Lose Sight of Humanity." *The Chronicle of Higher Education* 28, no. 17 (20 June 1984): 64.

Thurow, Lester C. *Generating Inequality: Mechanisms of Distribution in the U.S. Economy*. New York: Basic Books, 1975.

Westbrook, John D. *Considering the Research: What Makes an Effective School?* Austin, TX: Southwest Educational Development Laboratory, 1982.

Wong, Paul T. P., and Weiner, Bernard. "When People Ask 'Why' Questions, and the Heuristics of Attributional Search." *Journal of Personality and Social Psychology* 40, no. 4 (1981): 650-663.